

Effect of a buffer mixture system on the activity of lipases during immobilization and co-immobilization process and its use for biodiesel production

이종호, 김성봉, 박철환¹, 김승욱*
고려대학교 화공생명공학과; ¹광운대학교 화학공학과
(kimsu@korea.ac.kr*)

In this study, the effects of various buffers and ionic strengths on the immobilization of *Candida rugosa* and *Rhizops oryzae* lipases were investigated to enhance the activities of the immobilized lipases. Among the various buffers, the optimal buffers and ionic strength for the immobilization and co-immobilization of *C. rugosa* and *R. oryzae* lipases were determined to be a mixture of 0.25 M MOPs and sodium phosphate buffer (pH 6.5). Moreover, the activities of immobilized and co-immobilized *C. rugosa* and *R. oryzae* lipases under their optimal conditions were 3756.11, 2845.21 and 16505.6 U/g matrix, respectively. Finally, the activities of the immobilized lipases were maintained at levels greater than 90 % of their original activities after ten reuses and at levels greater than 60 % of their original activities after twenty reuses. Moreover, the activities of the co-immobilized lipases were maintained at levels exceeding 90 % and 70 % of their original activities after thirteen reuses and twenty reuses, respectively.